

**ACIDIC PRECIPITATION IN ONTARIO  
STUDY - ANNUAL STATISTICS OF  
CONCENTRATION AND DEPOSITION  
DAILY PRECIPITATION AND AIR  
MONITORING NETWORK, 1991  
ARB-051-93**

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PART I

INTRODUCTION





## INTRODUCTION

The statistical summaries presented in this report pertain to the 1991 analytical results obtained from the Acidic Precipitation in Ontario Study (APIOS) cumulative precipitation monitoring network. The relevant data can be obtained on request from the Air Resources Branch of The Ministry of Environment and Energy. All available data are utilized in the calculations except results reported as being unreliable (i.e., results are identified as unreasonable values by using the validation procedures; detailed description of the validation procedures is available from the Ministry upon request) or approximate (i.e., inexact results are reported due to laboratory difficulties, such as may be encountered in calibration, or when the sample cannot be re-analyzed to confirm the reported value). In a very few cases, concentration levels exceeded the upper limit of the range of the chemical analysis. Rather than using the upper limit, a decision was made to exclude these values from the statistics generated in this report. Reported results for metals which have missing leachate analysis are also excluded from statistical analysis. Results labelled as <W are replaced by "zero". W is the level which the analytical technique cannot distinguish from zero. Prior to 1986, if a level was recorded less than the detection limit T, a value corresponding to one half the detection limit was utilized for statistical calculations as reported in the statistical summaries. These values are no longer halved. Note that T is normally about ten times W, and values

above the T criteria are considered to be precise and accurate. The reported cumulative precipitation gauge depth (or an interpolated value from Environment Canada's Climate data) is utilized in the calculation of deposition. If a precipitation gauge value is not available, then the collected sample volume is converted to its equivalent precipitation depth and is used in the deposition calculation.

In the air concentration statistical summaries. "Nitric" represents "Nitric Acid" and "Total Nitrate" represents total nitrates calculated by the summation of particulate "Nitrate" and "Nitric Acid". The air filter measurement for sulphur dioxide includes a contribution for nylon-filter impregnated  $\text{SO}_4$ . In these reports the sulphur on nylon filters is interpreted as sulphur dioxide. However, it is possible that organic sulphur compounds also contribute to this loading. Methods do not currently exist to quantify this contribution in routine network operation.

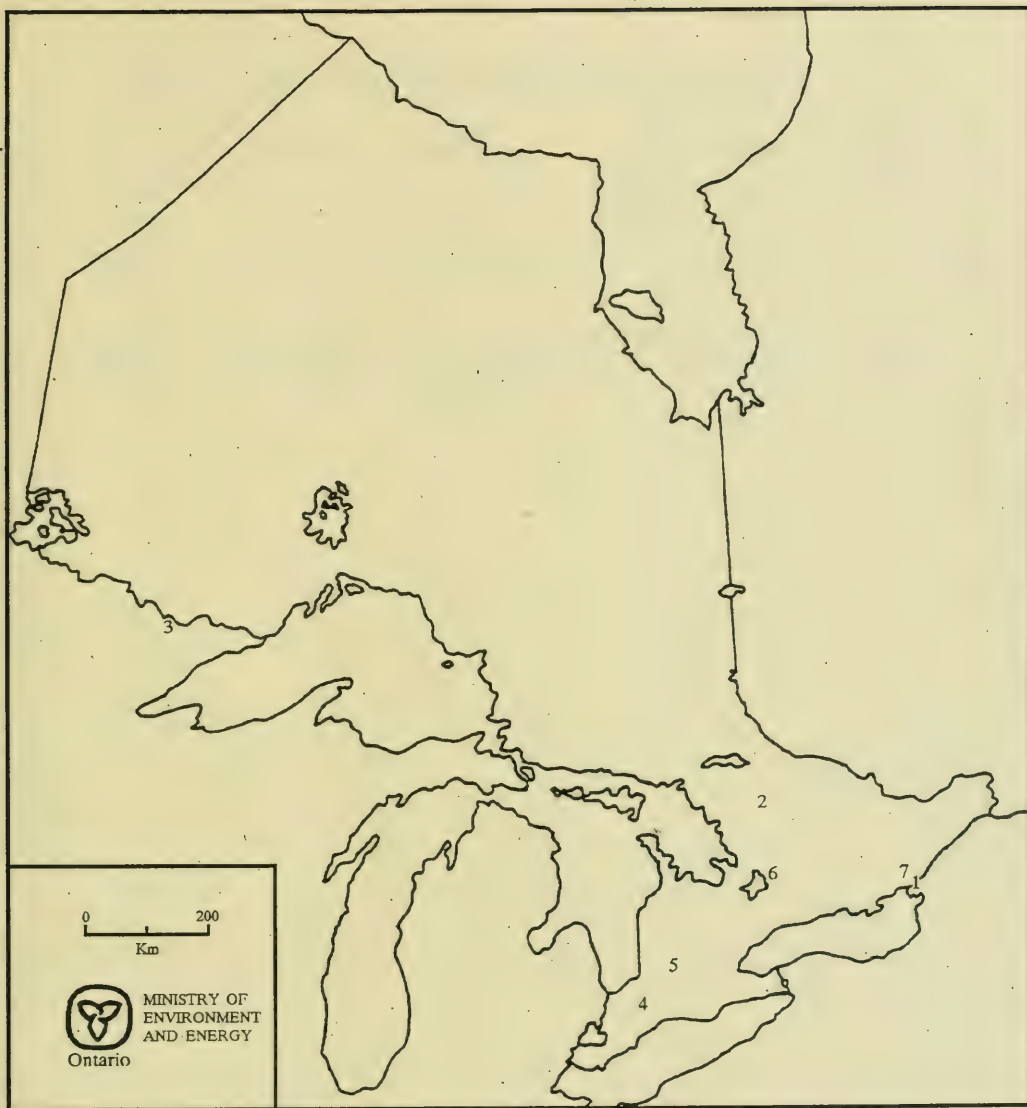
The statistical summaries presented in Parts III to VI include number of samples, mean (arithmetic/geometric), standard deviation, maximum, minimum, quartiles and precipitation weighted means using precipitation gauge depths where appropriate.



PART II

STATION LOCATION





1. CHARLESTON LAKE
2. DORSET \*
3. FERNBERG \*
4. LONGWOODS \*

5. NORTH EASTHOPE
6. RAVEN LAKE
7. WILMER

\* Indicates both a wet and dry network site



# APIOS DAILY PRECIPITATION AND AIR NETWORK SITES

<u>MOE REGION</u>	<u>STATION NAME</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>	<u>NORTHING</u>	<u>EASTING</u>
Southwestern	Longwood	42°53'03"	81°28'50"	4747849	460756
	North Easthope	43°24'22"	80°53'45"	4805705	508434
Central	Dorset	45°13'26"	78°55'52"	5009650	662400
	Raven Lake	44°36'40"	78°54'43"	4941655	665686
Southeastern	Charleston Lake	44°29'50"	76°02'40"	4927414	416963
	Wilmer	44°26'23"	76°31'50"	4921637	378195
Northwestern	Fernberg	47°56'51"	91°29'26"	5311349	612714

PART III

SUMMARY STATISTICS OF PRECIPITATION CONCENTRATION BY STATION



ONTARIO MINISTRY OF ENVIRONMENT & ENERGY  
 APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY  
 1991 SUMMARY STATISTICS OF CONCENTRATION

STATION: LONGWOODS AEROCHEM SITE NO.1

	EQUIVALENT PREC. DEPTH MM	CONDUCT UMHO/CM	FIELD.PH	LAB.PH	SULFATE MG/L	NITRATE MG/L	CALCIUM MG/L
# OF SAMPLES	103	103	103	103	103	103	103
MAXIMUM	36.0	122.00	6.39	7.98	14.55	2.18	5.60
MINIMUM	0.0	3.50	3.52	3.56	0.00	0.00	0.03
ARITH. MEAN	6.7	32.45	4.19	4.78	3.49	0.79	0.84
ARITH. STD. DEV.	6.6	21.35	0.60	0.99	2.78	0.52	1.05
GEOM. MEAN	4.3	26.39	4.15	4.70	2.65	0.65	0.44
1ST QUARTILE	1.8	18.00	3.77	4.17	1.75	0.36	0.21
2ND QUARTILE	4.0	29.50	4.09	4.39	2.78	0.75	0.38
3RD QUARTILE	9.5	42.00	4.31	4.89	4.30	1.00	1.02
VOL. WGT. MEAN	0	28.39	59	7	2.99	0.58	0.44
MISSING VALUES		10			10		10
	CHLORIDE MG/L	MAGNESIUM MG/L	POTASSIUM MG/L	SODIUM MG/L	AMMONIUM MG/L	ACIDITY GRAN UG/L	FREEH+ LAB UG/L
# OF SAMPLES	103	103	103	103	103	103	103
MAXIMUM	1.50	2.130	26.600	0.835	4.100	288.00	275.42
MINIMUM	0.01	0.005	0.015	0.000	0.000	6.08	0.01
ARITH. MEAN	0.34	0.171	0.412	0.155	0.592	73.30	48.67
ARITH. STD. DEV.	0.28	0.275	2.694	0.171	0.554	52.85	51.08
GEOM. MEAN	0.25	0.084	0.080	0.107	0.442	57.65	16.43
1ST QUARTILE	0.14	0.035	0.030	0.045	0.260	35.40	12.02
2ND QUARTILE	0.27	0.070	0.068	0.098	0.470	65.00	40.75
3RD QUARTILE	0.47	0.215	0.150	0.180	0.734	97.70	66.83
VOL. WGT. MEAN	0.24	0.088	0.160	0.103	0.445	74.36	49.68
MISSING VALUES	9	8	7	7	6	8	7



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 1991 SUMMARY STATISTICS OF CONCENTRATION

STATION: NORTH EASTHOPE AEROCHEM SITE NO.1

	EQUIVALENT PREC. DEPTH MM	CONDUCT UMHO/CM	FIELD.PH	LAB.PH	SULFATE MG/L	NITRATE MG/L	CALCIUM MG/L	
# OF SAMPLES	55	55	55	55	55	55	55	
MAXIMUM	19.8	140.00	5.30	7.54	23.50	3.73	8.13	
MINIMUM	0.0	1.50	5.30	3.18	0.40	0.03	0.03	
ARITH. MEAN	3.7	27.57	5.30	5.27	2.71	0.89	1.32	
ARITH. STD. DEV.	4.0	21.95	0.00	1.24	3.51	0.66	1.68	
GEOM. MEAN	2.3	20.78	5.30	5.13	1.86	0.69	0.58	
1ST QUARTILE	0.9	14.00	5.30	4.22	1.05	0.53	0.26	
2ND QUARTILE	2.7	22.75	5.30	4.93	2.00	0.78	0.76	
3RD QUARTILE	5.0	35.00	5.30	6.35	3.25	1.05	1.34	
VOL. WGT. MEAN	0	23.93	5.4	2	2.12	0.68	0.79	
MISSING VALUES		3			4	5	6	
								FREERH+ LAB
								UG/L
# OF SAMPLES	55	55	55	55	55	55	55	
MAXIMUM	3.58	1.526	0.375	1.143	6.050	308.00	659.13	
MINIMUM	0.01	0.005	0.000	0.015	0.013	10.70	0.03	
ARITH. MEAN	0.57	0.277	0.069	0.265	0.626	64.48	47.23	
ARITH. STD. DEV.	0.72	0.371	0.076	0.303	0.851	57.53	97.33	
GEOM. MEAN	0.31	0.114	0.049	0.146	0.388	45.16	5.40	
1ST QUARTILE	0.14	0.045	0.025	0.065	0.248	21.20	0.45	
2ND QUARTILE	0.27	0.135	0.045	0.140	0.454	47.30	11.86	
3RD QUARTILE	0.71	0.325	0.070	0.370	0.732	98.50	60.26	
VOL. WGT. MEAN	0.27	0.173	0.045	0.136	0.442	53.73	29.38	
MISSING VALUES	4	6	5	5	2	12	2	

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 1991 SUMMARY STATISTICS OF CONCENTRATION

STATION: DORSET AEROCHEM SITE NO.1

	EQUIVALENT PRECIP. DEPTH MM	CONDUCT UMHO/CM	FIELD.PH	LAB.PH	SULFATE MG/L	NITRATE MG/L	CALCIUM MG/L
# OF SAMPLES	209	209	209	209	209	209	209
MAXIMUM	49.2	84.50	6.41	7.29	13.00	5.43	5.85
MINIMUM	0.0	1.00	3.71	3.35	0.00	0.00	0.00
ARITH. MEAN	4.8	23.71	4.42	4.54	2.43	0.67	0.39
ARITH. STD. DEV.	7.1	18.31	0.38	0.59	2.30	0.69	0.78
GEOM. MEAN	2.3	16.84	4.41	4.50	1.60	0.45	0.22
1ST QUARTILE	0.4	10.00	4.17	4.16	0.85	0.25	0.06
2ND QUARTILE	2.0	18.50	4.38	4.45	1.80	0.15	0.15
3RD QUARTILE	6.2	34.00	4.61	4.81	3.33	0.91	0.37
VOL. WGT. MEAN	.	22.17	.	.	2.02	0.43	0.18
MISSING VALUES	0	40	93	36	42	44	43

	CHLORIDE MG/L	MAGNESIUM MG/L	POTASSIUM MG/L	SODIUM MG/L	AMMONIUM MG/L	ACIDITY GRAN UG/L	FREESH+ LAB UG/L
# OF SAMPLES	209	209	209	209	209	209	209
MAXIMUM	2.91	0.954	0.886	2.000	5.030	237.00	443.57
MINIMUM	0.00	0.000	0.000	0.000	0.000	17.80	0.05
ARITH. MEAN	0.23	0.067	0.074	0.114	0.513	67.68	54.23
ARITH. STD. DEV.	0.31	0.134	0.116	0.193	0.728	42.45	61.39
GEOM. MEAN	0.14	0.062	0.044	0.095	0.298	57.16	29.06
1ST QUARTILE	0.06	0.010	0.020	0.020	0.080	38.00	15.49
2ND QUARTILE	0.12	0.025	0.035	0.055	0.272	56.90	35.48
3RD QUARTILE	0.28	0.065	0.080	0.130	0.578	85.40	69.18
VOL. WGT. MEAN	0.12	0.033	0.032	0.065	0.326	64.04	42.05
MISSING VALUES	40	41	41	41	35	66	36

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 1991 SUMMARY STATISTICS OF CONCENTRATION

STATION: RAVEN LAKE AEROCHEM SITE NO.1

	EQUIVALENT PREC. DEPTH MM	CONDUCT UMHO/CM	FIELD.PH	LAB. PH	SULFATE MG/L	NITRATE MG/L	CALCIUM MG/L	
# OF SAMPLES	58	58	58	58	58	58	58	
MAXIMUM	20.2	94.50	5.94	7.12	7.25	2.07	2.79	
MINIMUM	0.0	1.00	3.78	3.73	0.20	0.03	0.02	
ARITH. MEAN	3.2	28.46	4.41	4.62	1.93	0.76	0.38	
ARITH. STD. DEV.	4.8	21.29	0.43	0.74	1.79	0.44	0.54	
GEOM. MEAN	1.7	19.68	4.39	4.57	1.28	0.62	0.20	
1ST QUANTILE	0.2	14.00	4.18	4.17	0.67	0.09	0.09	
2ND QUANTILE	1.1	25.75	4.31	4.35	1.20	0.70	0.20	
3RD QUANTILE	4.0	38.00	4.58	4.86	2.70	1.00	0.40	
VOL. WGT. MEAN	0	26.75	36	17	1.99	0.59	0.25	
MISSING VALUES		20			17	17	17	
								FREEH+ LAB
								UG/L
# OF SAMPLES	58	58	58	58	58	58	58	
MAXIMUM	0.93	0.505	0.233	1.225	1.380	226.00	186.21	
MINIMUM	0.02	0.000	0.005	0.015	0.000	16.10	0.08	
ARITH. MEAN	0.26	0.057	0.045	0.163	0.319	78.96	48.06	
ARITH. STD. DEV.	0.24	0.097	0.043	0.203	0.342	48.13	42.06	
GEOM. MEAN	0.17	0.039	0.031	0.099	0.193	64.70	23.76	
1ST QUANTILE	0.08	0.010	0.015	0.040	0.078	39.20	13.80	
2ND QUANTILE	0.18	0.030	0.030	0.095	0.186	78.05	44.67	
3RD QUANTILE	0.32	0.045	0.054	0.218	0.394	98.10	67.61	
VOL. WGT. MEAN	0.16	0.039	0.027	0.085	0.283	71.75	47.31	
MISSING VALUES	17	17	17	17	17	22	17	

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 1991 SUMMARY STATISTICS OF CONCENTRATION

STATION: CHARLESTON LAKE AEROCHEM SITE NO.1

	EQUIVALENT PREC. DEPTH MM	CONDUCT UMHO/CM	FIELD.PH	LAB.PH	SULFATE MG/L	NITRATE MG/L	CALCIUM MG/L
# OF SAMPLES	117	117	117	117	117	117	117
MAXIMUM	48.0	308.00	7.04	7.78	31.15	3.08	2.79
MINIMUM	0.2	0.40	3.25	3.16	0.00	0.00	0.00
ARITH. MEAN	7.1	31.67	4.40	4.48	2.83	0.66	0.31
ARITH. STD. DEV.	8.0	32.70	0.61	0.68	3.49	0.47	0.44
GEOM. MEAN	4.1	21.84	4.37	4.44	1.83	0.51	0.19
1ST QUARTILE	2.0	16.50	4.10	4.12	1.05	0.33	0.06
2ND QUARTILE	4.6	26.50	4.25	4.31	2.25	0.58	0.13
3RD QUARTILE	8.7	39.00	4.49	4.53	3.30	0.90	0.42
VOL. WGT. MEAN	0	28.46	17	7	2.48	0.50	0.19
MISSING VALUES		8			7	7	2

	CHLORIDE MG/L	MAGNESIUM MG/L	POTASSIUM MG/L	SODIUM MG/L	AMMONIUM MG/L	ACIDITY GRAN UG/L	FREEL+ LAB UG/L
# OF SAMPLES	117	117	117	117	117	117	117
MAXIMUM	0.92	0.875	4.345	0.813	31.500	728.00	691.83
MINIMUM	0.00	0.000	0.000	0.000	0.014	14.90	0.02
ARITH. MEAN	0.18	0.062	0.079	0.074	0.668	88.13	61.49
ARITH. STD. DEV.	0.18	0.106	0.402	0.112	2.882	78.66	73.24
GEOM. MEAN	0.12	0.053	0.038	0.083	0.295	70.96	32.94
1ST QUARTILE	0.06	0.010	0.010	0.015	0.168	51.90	29.51
2ND QUARTILE	0.13	0.028	0.020	0.035	0.308	74.70	49.55
3RD QUARTILE	0.22	0.075	0.045	0.090	0.574	107.00	75.86
VOL. WGT. MEAN	0.12	0.040	0.037	0.057	0.396	76.75	53.33
MISSING VALUES	5	1	1	1	0	14	7



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 1991 SUMMARY STATISTICS OF CONCENTRATION

STATION: WILMER AEROCHEM SITE NO.1

	EQUIVALENT		CONDUCT	FIELD.PH	LAB.PH	SULFATE	NITRATE	CALCIUM	
	PREC. DEPTH	MM	UMHO/CM						
# OF SAMPLES	45		45	45	45	45	45	45	
MAXIMUM	26.6		45.50	4.94	4.98	3.70	0.95	0.48	0.00
MINIMUM	0.2		4.50	1.47	3.74	0.00	0.00	0.00	0.00
ARITH. MEAN	4.8		22.98	4.22	4.38	1.63	0.45	0.18	0.14
ARITH. STD. DEV.	6.1		11.49	0.71	0.28	0.99	0.24	0.15	0.14
GEOM. MEAN	2.4		19.77	4.12	4.38	1.41	0.43	0.07	0.07
1ST QUARTILE	0.8		14.00	4.17	4.17	1.00	0.32	0.15	0.15
2ND QUARTILE	2.8		22.00	4.29	4.35	1.70	0.46	0.27	0.27
3RD QUARTILE	5.4		31.50	4.55	4.57	2.25	0.66	0.12	0.12
VOL. WGT. MEAN	0		18.55			1.48	0.35		
MISSING VALUES			24	27	21	26	26		
									FREEH+
									LAB
									UG/L
# OF SAMPLES	45		45	45	45	45	45	45	45
MAXIMUM	0.35		0.070	0.120	0.227	0.758	212.00	181.97	181.97
MINIMUM	0.00		0.000	0.000	0.000	0.032	26.60	10.47	10.47
ARITH. MEAN	0.10		0.023	0.022	0.067	0.247	77.08	50.68	50.68
ARITH. STD. DEV.	0.09		0.020	0.023	0.058	0.155	39.73	35.35	35.35
GEOM. MEAN	0.09		0.040	0.031	0.056	0.197	68.76	41.27	41.27
1ST QUARTILE	0.04		0.010	0.010	0.030	0.144	46.80	24.55	24.55
2ND QUARTILE	0.06		0.020	0.015	0.045	0.218	69.35	44.68	44.68
3RD QUARTILE	0.14		0.035	0.025	0.110	0.314	96.00	67.61	67.61
VOL. WGT. MEAN	0.08		0.022	0.023	0.057	0.198	64.87	41.43	41.43
MISSING VALUES	26		20	20	20	20	23	21	21

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 1991 SUMMARY STATISTICS OF CONCENTRATION

STATION: FERNBERG AEROCHEM SITE NO.1

	EQUIVALENT PREC. DEPTH MM	CONDUCT UMHO/CM	FIELD.PH	LAB.PH	SULFATE MG/L	NITRATE MG/L	CALCIUM MG/L
# OF SAMPLES	155	155	155	155	155	155	155
MAXIMUM	37.0	88.00	.	6.80	8.30	2.28	3.01
MINIMUM	0.0	0.80	.	3.74	0.00	0.00	0.00
ARITH. MEAN	4.9	10.19	.	5.20	1.35	0.34	0.27
ARITH. STD. DEV.	6.8	11.14	.	0.67	1.59	0.36	0.46
GEOM. MEAN	1.9	7.15	.	5.15	0.86	0.28	0.18
1ST QUARTILE	0.5	4.00	.	4.77	0.35	0.11	0.03
2ND QUARTILE	2.0	7.50	.	5.08	0.85	0.25	0.09
3RD QUARTILE	6.2	11.50	.	5.42	1.60	0.41	0.28
VOL. WGT. MEAN	.	7.91	.	.	1.00	0.25	0.18
MISSING VALUES	0	33	155	31	35	35	34
							FREEH+
	CHLORIDE MG/L	MAGNESIUM MG/L	POTASSIUM MG/L	SODIUM MG/L	AMMONIUM MG/L	ACIDITY GRAN UG/L	LAB UG/L
# OF SAMPLES	155	155	155	155	155	155	155
MAXIMUM	0.86	0.500	0.720	0.716	3.011	196.00	181.97
MINIMUM	0.00	0.000	0.000	0.000	0.000	0.00	0.16
ARITH. MEAN	0.11	0.042	0.052	0.052	0.361	18.11	15.34
ARITH. STD. DEV.	0.14	0.070	0.095	0.081	0.486	34.73	23.68
GEOM. MEAN	0.08	0.053	0.054	0.081	0.186	22.56	6.38
1ST QUARTILE	0.04	0.005	0.010	0.010	0.058	31.18	3.80
2ND QUARTILE	0.06	0.015	0.025	0.026	0.188	22.66	8.32
3RD QUARTILE	0.14	0.055	0.050	0.070	0.416	37.40	16.60
VOL. WGT. MEAN	0.06	0.032	0.033	0.037	0.277	31.04	10.81
MISSING VALUES	33	34	34	34	29	49	31



PART IV

SUMMARY STATISTICS OF PRECIPITATION CONCENTRATION BY REGION





ONTARIO MINISTRY OF ENVIRONMENT & ENERGY  
 APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY  
 1991 SUMMARY STATISTICS OF CONCENTRATION

REGION: CE

	EQUIVALENT PREC. DEPTH MM	CONDUCT UMHO/CM	FIELD.PH	LAB.PH	SULFATE MG/L	NITRATE MG/L	CALCIUM MG/L
# OF SAMPLES	422	422	422	422	422	422	422
MAXIMUM	49.2	94.50	6.41	7.29	13.00	5.43	5.85
MINIMUM	0.0	0.80	3.71	3.35	0.00	0.00	0.00
ARITH. MEAN	4.6	19.24	4.42	4.79	1.97	0.56	0.34
ARITH. STD. DEV.	6.7	17.92	0.39	0.71	2.06	0.58	0.65
GEOM. MEAN	2.1	12.48	4.40	4.74	1.24	0.39	0.20
1ST QUARTILE	0.4	6.50	4.17	4.29	0.56	0.18	0.05
2ND QUARTILE	1.9	14.00	4.36	4.68	1.23	0.38	0.14
3RD QUARTILE	6.0	26.50	4.61	5.14	2.65	0.77	0.36
VOL. WGT. MEAN	.	17.13	.	.	1.63	0.38	0.19
MISSING VALUES	0	93	284	84	94	96	94
							FREH+
	CHLORIDE MG/L	MAGNESIUM MG/L	POTASSIUM MG/L	SODIUM MG/L	AMMONIUM MG/L	ACIDITY GRAN UG/L	LAB UG/L
# OF SAMPLES	422	422	422	422	422	422	422
MAXIMUM	2.91	0.954	0.886	2.000	5.030	237.00	443.57
MINIMUM	0.00	0.000	0.000	0.000	0.000	16.10	0.05
ARITH. MEAN	0.19	0.057	0.062	0.097	0.433	56.85	39.21
ARITH. STD. DEV.	0.26	0.110	0.103	0.167	0.615	41.09	51.80
GEOM. MEAN	0.12	0.055	0.045	0.090	0.238	46.34	16.26
1ST QUARTILE	0.05	0.010	0.015	0.020	0.070	27.70	7.24
2ND QUARTILE	0.10	0.021	0.030	0.045	0.226	42.08	20.89
3RD QUARTILE	0.24	0.055	0.060	0.115	0.506	71.50	51.29
VOL. WGT. MEAN	0.10	0.033	0.032	0.058	0.303	52.16	30.59
MISSING VALUES	90	92	92	92	81	137	84

ONTARIO MINISTRY OF ENVIRONMENT & ENERGY  
 ARIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY  
 1991 SUMMARY STATISTICS OF CONCENTRATION

REGION: NW

	EQUIVALENT PREC. DEPTH MM	CONDUCT UMHO/CM	FIELD PH	LAB PH	SULFATE MG/L	NITRATE MG/L	CALCIUM MG/L
# OF SAMPLES	155	155	155	155	155	155	155
MAXIMUM	37.0	88.00	.	6.80	8.30	2.28	3.01
MINIMUM	0.0	0.80	.	3.74	0.00	0.00	0.00
ARITH. MEAN	4.9	10.19	.	5.20	1.35	0.34	0.27
ARITH. STD. DEV.	6.8	11.14	.	0.67	1.59	0.36	0.46
GEOM. MEAN	1.9	7.15	.	5.15	0.86	0.28	0.18
1ST QUARTILE	0.5	4.00	.	4.77	0.35	0.11	0.03
2ND QUARTILE	2.0	7.50	.	5.08	0.85	0.25	0.09
3RD QUARTILE	6.2	11.50	.	5.42	1.60	0.41	0.28
VOL. WGT. MEAN	.	7.91	.	.	1.00	0.25	0.18
MISSING VALUES	0	33	155	31	35	35	34

	CHLORIDE MG/L	MAGNESIUM MG/L	POTASSIUM MG/L	SODIUM MG/L	AMMONIUM MG/L	ACIDITY GRAN UG/L	FREER+ LAB UG/L
# OF SAMPLES	155	155	155	155	155	155	155
MAXIMUM	0.86	0.500	0.720	0.716	3.011	196.00	181.97
MINIMUM	0.00	0.000	0.000	0.000	0.000	18.11	0.16
ARITH. MEAN	0.11	0.042	0.052	0.052	0.361	34.73	15.34
ARITH. STD. DEV.	0.14	0.070	0.095	0.081	0.486	22.56	23.88
GEOM. MEAN	0.08	0.053	0.054	0.081	0.186	31.18	6.38
1ST QUARTILE	0.04	0.005	0.010	0.010	0.058	22.66	3.80
2ND QUARTILE	0.06	0.015	0.025	0.026	0.188	28.55	8.32
3RD QUARTILE	0.14	0.055	0.050	0.070	0.416	37.40	16.60
VOL. WGT. MEAN	0.06	0.032	0.033	0.037	0.277	31.04	10.81
MISSING VALUES	33	34	34	34	29	49	31

ONTARIO MINISTRY OF ENVIRONMENT & ENERGY  
AFIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY  
1991 SUMMARY STATISTICS OF CONCENTRATION

REGION: SE

	EQUIVALENT PREC. DEPTH MM	CONDUCT UMHO/CM	FIELD.PH	LAB.PH	SULFATE MG/L	NITRATE MG/L	CALCIUM MG/L
# OF SAMPLES	162	162	162	162	162	162	162
MAXIMUM	48.0	308.00	7.04	7.78	31.15	3.08	2.79
MINIMUM	0.2	0.40	1.47	3.16	0.00	0.00	0.00
ARITH. MEAN	6.4	30.26	4.37	4.46	2.65	0.63	0.29
ARITH. STD. DEV.	7.6	30.46	0.63	0.63	3.27	0.45	0.40
GEOM. MEAN	3.5	21.49	4.33	4.43	1.76	0.50	0.18
1ST QUARTILE	1.8	15.50	4.11	4.14	1.05	0.32	0.06
2ND QUARTILE	4.0	26.50	4.26	4.31	1.81	0.55	0.14
3RD QUARTILE	7.7	37.00	4.50	4.55	3.15	0.82	0.37
VOL. WGT. MEAN	.	26.93	.	.	2.34	0.48	0.18
MISSING VALUES	0	32	44	28	33	33	22

	CHLORIDE MG/L	MAGNESIUM MG/L	POTASSIUM MG/L	SODIUM MG/L	AMMONIUM MG/L	ACIDITY GRAN UG/L	FREHH+ LAB UG/L
# OF SAMPLES	162	162	162	162	162	162	162
MAXIMUM	0.92	0.875	4.345	0.813	31.500	728.00	691.83
MINIMUM	0.00	0.000	0.000	0.000	0.014	14.90	0.02
ARITH. MEAN	0.17	0.055	0.069	0.073	0.594	86.18	59.55
ARITH. STD. DEV.	0.17	0.098	0.365	0.105	2.621	73.44	68.15
GEOM. MEAN	0.12	0.050	0.036	0.078	0.275	70.57	34.30
1ST QUARTILE	0.05	0.010	0.010	0.020	0.166	51.70	28.05
2ND QUARTILE	0.12	0.025	0.020	0.035	0.295	74.20	48.98
3RD QUARTILE	0.21	0.060	0.040	0.095	0.506	106.00	72.44
VOL. WGT. MEAN	0.11	0.037	0.035	0.057	0.362	74.90	51.38
MISSING VALUES	31	21	21	21	20	37	28



ONTARIO MINISTRY OF ENVIRONMENT & ENERGY  
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY  
1991 SUMMARY STATISTICS OF CONCENTRATION

REGION: SW

	EQUIVALENT PREC. DEPTH MM	CONDUCT UMHO/CM	FIELD.PH	LAB.PH	SULFATE MG/L	NITRATE MG/L	CALCIUM MG/L	
# OF SAMPLES	158	158	158	158	158	158	158	
MINIMUM	36.0	140.00	6.39	7.98	23.50	3.73	8.13	
MAXIMUM	0.0	1.50	3.52	3.18	0.00	0.00	0.03	
ARITH. MEAN	5.6	30.70	4.21	4.96	3.21	0.83	1.01	
ARITH. STD. DEV.	6.0	21.70	0.61	1.11	3.08	0.57	1.32	
GEOM. MEAN	3.4	24.22	4.17	4.85	2.34	0.66	0.48	
1ST QUARTILE	1.6	17.00	3.84	4.18	1.35	0.39	0.21	
2ND QUARTILE	3.4	26.50	4.10	4.50	2.55	0.76	0.51	
3RD QUARTILE	8.0	40.50	4.35	5.46	4.03	1.05	1.26	
VOL. WGT. MEAN	0	27.34	113	9	2.78	0.60	0.52	
MISSING VALUES		13			13	15	16	
								FREEH+
								LAB
								UG/L
# OF SAMPLES	158	158	158	158	158	158	158	
MINIMUM	3.58	2.130	26.600	1.143	6.050	308.00	659.13	
MAXIMUM	0.01	0.005	0.000	0.000	0.000	6.08	0.01	
ARITH. MEAN	0.42	0.207	0.295	0.192	0.604	70.55	48.16	
ARITH. STD. DEV.	0.49	0.315	2.191	0.231	0.674	54.51	71.07	
GEOM. MEAN	0.27	0.093	0.068	0.119	0.422	53.42	11.06	
1ST QUARTILE	0.14	0.035	0.030	0.050	0.258	29.70	3.47	
2ND QUARTILE	0.27	0.085	0.060	0.108	0.461	61.20	31.62	
3RD QUARTILE	0.49	0.225	0.130	0.215	0.734	97.70	66.07	
VOL. WGT. MEAN	0.25	0.108	0.134	0.111	0.444	69.63	44.89	
MISSING VALUES	13	14	12	12	8	20	9	

PART V

SUMMARY STATISTICS OF PRECIPITATION DEPOSITION BY STATION



ONTARIO MINISTRY OF ENVIRONMENT & ENERGY  
 APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY  
 1991 SUMMARY STATISTICS OF DEPOSITION

STATION: LONGWOODS AEROCHEM SITE NO.1

		EQUIVALENT															
		PREC. DEPTH		SULFATE		NITRATE		CALCIUM		CHLORIDE		MAGNESIUM					
		MM		MG/M**2		MG/M**2		MG/M**2		MG/M**2		MG/M**2					
# OF SAMPLES	:	103		103		103		103		103		103					
MAXIMUM	:	36.0		117.50		16.24		16.32		11.53		3.880					
MINIMUM	:	0.0		0.00		0.00		0.00		0.00		0.000					
ARITH. MEAN	:	6.7		20.69		4.05		3.11		1.69		0.610					
ARITH. STD. DEV.	:	6.6		22.48		3.26		3.05		1.72		0.701					
GEOM. MEAN	:	4.3		11.65		2.94		2.04		1.17		0.395					
1ST QUARTILE	:	1.8		5.88		2.00		0.83		0.64		0.200					
2ND QUARTILE	:	4.0		15.18		3.17		2.21		1.18		0.384					
3RD QUARTILE	:	9.5		24.32		5.68		3.86		1.86		0.726					
VOL. WGT. MEAN	:	.		20.53		3.98		3.03		1.67		0.606					
MISSING VALUES	:	0		9		10		10		9		8					

		POTASSIUM		SODIUM		AMMONIUM		ACIDITY GRAN		FREEH+	
		MG/M**2		MG/M**2		MG/M**2		UG/M**2		LAB	
		MG/M**2		MG/M**2		MG/M**2		UG/M**2		UG/M**2	
# OF SAMPLES	:	103		103		103		103		103	
MAXIMUM	:	42.560		5.015		11.750		4140.00		2994.35	
MINIMUM	:	0.000		0.000		0.000		0.00		0.00	
ARITH. MEAN	:	1.099		0.674		3.016		514.65		340.68	
ARITH. STD. DEV.	:	4.444		0.803		2.800		636.17		470.65	
GEOM. MEAN	:	0.362		0.460		1.923		238.10		68.66	
1ST QUARTILE	:	0.140		0.192		0.924		98.04		33.49	
2ND QUARTILE	:	0.318		0.469		1.800		343.20		188.62	
3RD QUARTILE	:	0.630		0.848		4.326		672.96		427.63	
VOL. WGT. MEAN	:	1.103		0.707		3.061		511.37		341.66	
MISSING VALUES	:	7		7		6		8		7	

ONTARIO MINISTRY OF ENVIRONMENT & ENERGY  
 APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY  
 1991 SUMMARY STATISTICS OF DEPOSITION

STATION: NORTH EASTHOPE AEROCHEM SITE NO.1

	EQUIVALENT PREC. DEPTH MM	SULFATE MG/M**2	NITRATE MG/M**2	CALCIUM MG/M**2	CHLORIDE MG/M**2	MAGNESIUM MG/M**2
# OF SAMPLES	55	55	55	55	55	55
MAXIMUM	19.8	64.35	9.11	19.48	4.90	6.248
MINIMUM	0.0	0.00	0.00	0.00	0.00	0.000
ARITH. MEAN	3.7	8.29	2.70	3.22	1.07	0.707
ARITH. STD. DEV.	4.0	10.55	2.19	4.28	0.98	1.080
GEOM. MEAN	2.3	4.55	1.74	1.53	0.75	0.313
1ST QUANTILE	0.9	1.54	0.93	0.57	0.40	0.124
2ND QUANTILE	2.7	5.27	2.07	1.75	0.84	0.285
3RD QUANTILE	5.0	12.68	3.81	4.03	1.37	0.700
VOL. WGT. MEAN		8.28	2.65	3.09	1.07	0.678
MISSING VALUES	0	4	5	6	4	5

	POTASSIUM MG/M**2	SODIUM MG/M**2	AMMONIUM MG/M**2	ACIDITY GRAN UG/M**2	FREEH+ LAB UG/M**2
# OF SAMPLES	55	55	55	55	55
MAXIMUM	2.574	3.135	11.603	988.02	590.73
MINIMUM	0.000	0.000	0.000	0.00	0.00
ARITH. MEAN	0.180	0.546	1.695	244.02	112.68
ARITH. STD. DEV.	0.354	0.595	2.032	240.73	148.41
GEOM. MEAN	0.131	0.388	0.924	130.12	11.81
1ST QUANTILE	0.073	0.190	0.468	64.60	1.26
2ND QUANTILE	0.110	0.388	1.163	120.25	21.90
3RD QUANTILE	0.153	0.660	2.203	425.94	197.74
VOL. WGT. MEAN	0.177	0.530	1.727	210.05	114.85
MISSING VALUES	5	5	2	12	2



ONTARIO MINISTRY OF ENVIRONMENT & ENERGY  
 APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY  
 1991 SUMMARY STATISTICS OF DEPOSITION

STATION: DORSET AEROCHEM SITE NO.1.

	EQUIVALENT PREC. DEPTH MM	SULFATE MG/M**2	NITRATE MG/M**2	CALCIUM MG/M**2	CHLORIDE MG/M**2	MAGNESIUM MG/M**2
# OF SAMPLES	209	209	209	209	209	209
MAXIMUM	49.2	149.48	18.79	15.40	10.56	1.435
MINIMUM	0.0	0.00	0.00	0.00	0.00	0.000
ARITH. MEAN	4.8	11.62	2.54	0.94	0.69	0.155
ARITH. STD. DEV.	7.1	20.18	3.10	1.72	1.10	0.253
GEOM. MEAN	2.3	4.39	1.36	0.59	0.41	0.161
1ST QUANTILE	0.4	1.18	0.46	0.14	0.14	0.012
2ND QUANTILE	2.0	4.40	1.36	0.44	0.34	0.071
3RD QUANTILE	6.2	12.93	3.46	1.02	0.73	0.168
VOL. WGT. MEAN	.	11.70	2.49	1.05	0.69	0.191
MISSING VALUES	0	42	44	43	40	41

	POTASSIUM MG/M**2	SODIUM MG/M**2	AMMONIUM MG/M**2	ACIDITY GRAN UG/M**2	FREEH+ LAB UG/M**2
# OF SAMPLES	209	209	209	209	209
MAXIMUM	1.888	4.669	15.744	4161.20	3510.36
MINIMUM	0.000	0.000	0.000	3.72	0.00
ARITH. MEAN	0.182	0.297	1.776	436.97	239.82
ARITH. STD. DEV.	0.247	0.524	2.712	593.33	416.84
GEOM. MEAN	0.135	0.241	0.823	231.70	66.66
1ST QUANTILE	0.048	0.048	0.129	92.88	28.13
2ND QUANTILE	0.105	0.142	0.681	243.60	97.77
3RD QUANTILE	0.238	0.320	2.402	545.00	257.52
VOL. WGT. MEAN	0.168	0.378	1.885	370.63	243.36
MISSING VALUES	41	41	35	66	36

ONTARIO MINISTRY OF ENVIRONMENT & ENERGY  
 APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY  
 1991 SUMMARY STATISTICS OF DEPOSITION

STATION: RAVEN LAKE AEROCHEM SITE NO.1

	EQUIVALENT PREC. DEPTH MM	SULFATE MG/M**2	NITRATE MG/M**2	CALCIUM MG/M**2	CHLORIDE MG/M**2	MAGNESIUM MG/M**2
# OF SAMPLES	58	58	58	58	58	58
MAXIMUM	20.2	50.76	10.37	8.72	3.72	1.280
MINIMUM	0.0	0.07	0.05	0.04	0.04	0.000
ARITH. MEAN	3.2	7.98	2.35	1.01	0.63	0.139
ARITH. STD. DEV.	4.8	12.16	2.35	1.59	0.73	0.241
GEOM. MEAN	1.7	2.76	1.33	0.44	0.36	0.074
1ST QUARTILE	0.2	0.76	0.68	0.15	0.21	0.020
2ND QUARTILE	1.1	2.34	1.63	0.37	0.33	0.046
3RD QUARTILE	4.0	7.25	3.20	1.20	0.76	0.156
VOL. WGT. MEAN	.	8.38	2.47	1.06	0.66	0.165
MISSING VALUES	0	17	17	17	17	17

	POTASSIUM MG/M**2	SODIUM MG/M**2	AMMONIUM MG/M**2	ACIDITY GRAN UG/M**2	FREEH+ LAB UG/M**2
# OF SAMPLES	58	58	58	58	58
MAXIMUM	0.801	1.691	9.936	1394.00	1048.21
MINIMUM	0.017	0.028	0.000	12.88	0.06
ARITH. MEAN	0.108	0.343	1.109	322.29	189.82
ARITH. STD. DEV.	0.142	0.366	1.900	345.45	238.89
GEOM. MEAN	0.067	0.212	0.402	172.95	51.02
1ST QUARTILE	0.032	0.114	0.151	72.80	14.63
2ND QUARTILE	0.068	0.208	0.449	214.92	74.13
3RD QUARTILE	0.105	0.444	1.260	384.80	266.74
VOL. WGT. MEAN	0.114	0.360	1.193	302.34	199.35
MISSING VALUES	17	17	17	22	17



ONTARIO MINISTRY OF ENVIRONMENT & ENERGY  
 ARIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY  
 1991 SUMMARY STATISTICS OF DEPOSITION

STATION: WILMER AEROCHEM SITE NO.1

	EQUIVALENT PREC. DEPTH MM	SULFATE MG/M**2	NITRATE MG/M**2	CALCIUM MG/M**2	CHLORIDE MG/M**2	MAGNESIUM MG/M**2
# OF SAMPLES	45	45	45	45	45	45
MAXIMUM	26.6	38.70	5.50	3.08	2.28	0.456
MINIMUM	0.2	0.00	0.00	0.00	0.00	0.000
ARITH. MEAN	4.8	10.53	2.53	0.83	0.56	0.107
ARITH. STD. DEV.	6.1	10.98	1.75	0.65	0.55	0.099
GEOM. MEAN	2.4	6.40	1.95	0.66	0.40	0.136
1ST QUARTILE	0.8	2.80	1.20	0.45	0.20	0.051
2ND QUARTILE	2.8	7.39	2.05	0.78	0.39	0.100
3RD QUARTILE	5.4	12.20	4.39	0.97	0.73	0.156
VOL. WGT. MEAN		7.15	1.72	0.60	0.38	0.105
MISSING VALUES	0	26	26	20	26	20

	POTASSIUM MG/M**2	SODIUM MG/M**2	AMMONIUM MG/M**2	ACIDITY GRAN UG/M**2	FREEH+ LAB UG/M**2
# OF SAMPLES	45	45	45	45	45
MAXIMUM	0.570	1.254	3.580	1308.92	786.19
MINIMUM	0.000	0.000	0.115	63.60	33.82
ARITH. MEAN	0.117	0.328	1.356	445.26	277.90
ARITH. STD. DEV.	0.147	0.312	1.024	349.62	228.04
GEOM. MEAN	0.112	0.236	0.949	318.59	192.41
1ST QUARTILE	0.036	0.122	0.560	199.36	104.41
2ND QUARTILE	0.060	0.204	1.064	254.05	172.60
3RD QUARTILE	0.160	0.374	1.782	707.56	313.55
VOL. WGT. MEAN	0.110	0.274	0.957	313.98	200.50
MISSING VALUES	20	20	20	23	21

ONTARIO MINISTRY OF ENVIRONMENT & ENERGY  
APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY  
1991 SUMMARY STATISTICS OF DEPOSITION

STATION: FERNBERG AEROCHEM SITE NO.1

	EQUIVALENT PREC. DEPTH MM	SULFATE MG/M**2	NITRATE MG/M**2	CALCIUM MG/M**2	CHLORIDE MG/M**2	MAGNESIUM MG/M**2
# OF SAMPLES	155	155	155	155	155	155
MAXIMUM	37.0	45.36	8.96	9.74	2.90	1.568
MINIMUM	0.0	0.00	0.00	0.00	0.00	0.000
ARITH. MEAN	4.9	5.68	1.29	0.83	0.32	0.140
ARITH. STD. DEV.	6.8	7.92	1.57	1.51	0.40	0.254
GEOM. MEAN	1.9	2.24	0.68	0.37	0.20	0.104
1ST QUANTILE	0.5	0.73	0.22	0.06	0.09	0.004
2ND QUANTILE	2.0	2.91	0.76	0.26	0.18	0.044
3RD QUANTILE	6.2	7.05	1.86	0.93	0.37	0.144
VOL. WGT. MEAN	.	4.90	1.24	0.89	0.30	0.157
MISSING VALUES	0	35	35	34	33	34

	POTASSIUM MG/M**2	SODIUM MG/M**2	AMMONIUM MG/M**2	ACIDITY GRAN UG/M**2	FREEH+ LAB UG/M**2
# OF SAMPLES	155	155	155	155	155
MAXIMUM	1.169	2.030	18.144	1142.28	708.12
MINIMUM	0.000	0.000	0.000	4.16	0.16
ARITH. MEAN	0.164	0.135	1.549	204.78	61.98
ARITH. STD. DEV.	0.227	0.229	2.519	244.28	113.42
GEOM. MEAN	0.130	0.146	0.481	111.21	16.75
1ST QUANTILE	0.017	0.013	0.071	52.00	5.04
2ND QUANTILE	0.078	0.064	0.576	118.14	21.65
3RD QUANTILE	0.210	0.146	1.984	233.20	67.95
VOL. WGT. MEAN	0.164	0.181	1.362	152.36	53.08
MISSING VALUES	34	34	29	49	31





PART VI

SUMMARY STATISTICS OF PRECIPITATION DEPOSITION BY REGION



ONTARIO MINISTRY OF ENVIRONMENT & ENERGY  
 APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY  
 1991 SUMMARY STATISTICS OF DEPOSITION

REGION: CE

	EQUIVALENT PREC. DEPTH MM	SULFATE MG/M**2	NITRATE MG/M**2	CALCIUM MG/M**2	CHLORIDE MG/M**2	MAGNESIUM MG/M**2
# OF SAMPLES	422	422	422	422	422	422
MAXIMUM	49.2	149.48	18.79	15.40	10.56	1.568
MINIMUM	0.0	0.00	0.00	0.00	0.00	0.000
ARITH. MEAN	4.6	8.99	2.05	0.91	0.55	0.148
ARITH. STD. DEV.	6.7	16.01	2.61	1.63	0.88	0.252
GEOM. MEAN	2.1	3.24	1.05	0.48	0.31	0.125
1ST QUARTILE	0.4	0.96	0.36	0.11	0.12	0.008
2ND QUARTILE	1.9	3.55	1.03	0.36	0.27	0.057
3RD QUARTILE	6.0	10.05	2.83	1.01	0.67	0.167
VOL. WGT. MEAN	.	8.54	2.00	0.99	0.53	0.174
MISSING VALUES	0	94	96	94	90	92

	POTASSIUM MG/M**2	SODIUM MG/M**2	AMMONIUM MG/M**2	ACIDITY GRAN UG/M**2	FREEH+ LAB UG/M**2
# OF SAMPLES	422	422	422	422	422
MAXIMUM	1.888	4.669	18.144	4161.20	3510.36
MINIMUM	0.000	0.000	0.000	3.72	0.00
ARITH. MEAN	0.166	0.243	1.612	336.12	168.51
ARITH. STD. DEV.	0.230	0.427	2.564	474.81	327.71
GEOM. MEAN	0.122	0.197	0.619	169.94	38.88
1ST QUARTILE	0.035	0.036	0.110	77.12	10.99
2ND QUARTILE	0.090	0.115	0.606	182.26	57.51
3RD QUARTILE	0.210	0.275	2.016	384.80	181.35
VOL. WGT. MEAN	0.169	0.306	1.587	273.00	160.13
MISSING VALUES	92	92	81	137	84

ONTARIO MINISTRY OF ENVIRONMENT & ENERGY  
 APIOS - ACIDIC-PRECIIPITATION IN ONTARIO STUDY  
 1991 SUMMARY STATISTICS OF DEPOSITION

REGION: NW

	EQUIVALENT PREC. DEPTH MM	SULFATE MG/M**2	NITRATE MG/M**2	CALCIUM MG/M**2	CHLORIDE MG/M**2	MAGNESIUM MG/M**2
# OF SAMPLES	155	155	155	155	155	155
MAXIMUM	37.0	45.36	8.96	9.74	2.90	1.568
MINIMUM	0.0	0.00	0.00	0.00	0.00	0.000
ARITH. MEAN	4.9	5.68	1.29	0.83	0.32	0.140
ARITH. STD. DEV.	6.8	7.92	1.57	1.51	0.40	0.254
GEOM. MEAN	1.9	2.24	0.68	0.37	0.20	0.104
1ST QUARTILE	0.5	0.73	0.22	0.06	0.09	0.004
2ND QUARTILE	2.0	2.91	0.76	0.26	0.18	0.044
3RD QUARTILE	6.2	7.05	1.86	0.93	0.37	0.144
VOL. WGT. MEAN	.	4.90	1.24	0.89	0.30	0.157
MISSING VALUES	0	35	35	34	33	34

FREEH+

LAB

UG/M\*\*2

ACIDITY GRAN

UG/M\*\*2

SODIUM

MG/M\*\*2

POTASSIUM

MG/M\*\*2

# OF SAMPLES	155	155	155	155	155	155
MAXIMUM	1.169	2.030	18.144	1142.28	708.12	708.12
MINIMUM	0.000	0.000	0.000	4.16	0.16	0.16
ARITH. MEAN	0.164	0.135	1.549	204.78	61.98	61.98
ARITH. STD. DEV.	0.227	0.229	2.519	244.28	113.42	113.42
GEOM. MEAN	0.130	0.146	0.481	111.21	16.75	16.75
1ST QUARTILE	0.017	0.013	0.071	52.00	5.04	5.04
2ND QUARTILE	0.078	0.064	0.576	118.14	21.65	21.65
3RD QUARTILE	0.210	0.146	1.984	233.20	67.95	67.95
VOL. WGT. MEAN	0.164	0.181	1.362	152.36	53.08	53.08
MISSING VALUES	34	34	29	49	31	31



ONTARIO MINISTRY OF ENVIRONMENT & ENERGY  
 APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY  
 1991 SUMMARY STATISTICS OF DEPOSITION

REGION: SE

	EQUIVALENT PREC. DEPTH MM	SULFATE MG/M**2	NITRATE MG/M**2	CALCIUM MG/M**2	CHLORIDE MG/M**2	MAGNESIUM MG/M**2
# OF SAMPLES	162	162	162	162	162	162
MAXIMUM	48.0	134.16	19.34	9.59	4.70	2.040
MINIMUM	0.2	0.00	0.00	0.00	0.00	0.000
ARITH. MEAN	6.4	16.70	3.44	1.11	0.78	0.203
ARITH. STD. DEV.	7.6	22.11	3.10	1.48	0.82	0.296
GEOM. MEAN	3.5	7.57	2.16	0.69	0.49	0.164
1ST QUARTILE	1.8	2.73	1.04	0.25	0.22	0.039
2ND QUARTILE	4.0	9.74	2.88	0.68	0.53	0.116
3RD QUARTILE	7.7	20.40	4.87	1.25	1.02	0.233
VOL. WGT. MEAN		15.05	3.08	1.16	0.72	0.240
MISSING VALUES	0	33	33	22	31	21

	POTASSIUM MG/M**2	SODIUM MG/M**2	AMMONIUM MG/M**2	ACIDITY GRAN UG/M**2	FREEH+ LAB UG/M**2
# OF SAMPLES	162	162	162	162	162
MAXIMUM	8.690	2.793	63.000	3962.40	3192.67
MINIMUM	0.000	0.000	0.017	11.39	0.03
ARITH. MEAN	0.204	0.295	2.544	578.50	376.18
ARITH. STD. DEV.	0.735	0.397	5.667	586.65	446.82
GEOM. MEAN	0.127	0.248	1.151	357.73	155.64
1ST QUARTILE	0.047	0.050	0.524	181.65	69.35
2ND QUARTILE	0.094	0.188	1.430	422.40	262.04
3RD QUARTILE	0.175	0.376	2.745	707.56	466.10
VOL. WGT. MEAN	0.223	0.366	2.334	482.71	331.14
MISSING VALUES	21	21	20	37	28

ONTARIO MINISTRY OF ENVIRONMENT & ENERGY  
 APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY  
 1991 SUMMARY STATISTICS OF DEPOSITION

REGION: SW

EQUIVALENT PREC. DEPTH MM		SULFATE MG/M**2	NITRATE MG/M**2	CALCIUM MG/M**2	CHLORIDE MG/M**2	MAGNESIUM MG/M**2
# OF SAMPLES	: 158	158	158	158	158	158
MAXIMUM	: 36.0	117.50	16.24	19.48	11.53	6.248
MINIMUM	: 0.0	0.00	0.00	0.00	0.00	0.000
ARITH. MEAN	: 5.6	16.33	3.58	3.15	1.47	0.643
ARITH. STD. DEV.	: 6.0	20.04	3.00	3.52	1.53	0.851
GEOM. MEAN	: 3.4	8.24	2.45	1.85	1.00	0.365
1ST QUARTILE	: 1.6	3.60	1.20	0.78	0.60	0.146
2ND QUARTILE	: 3.4	9.30	3.00	2.03	1.08	0.347
3RD QUARTILE	: 8.0	19.20	5.44	4.03	1.73	0.710
VOL. WGT. MEAN	: .0	16.31	3.53	3.06	1.46	0.633
MISSING VALUES	: 0	13	15	16	13	14

POTASSIUM MG/M**2		SODIUM MG/M**2	AMMONIUM MG/M**2	ACIDITY GRAN UG/M**2	FREEH+ LAB UG/M**2
# OF SAMPLES	: 158	158	158	158	158
MAXIMUM	: 42.560	5.015	11.750	4140.00	2994.35
MINIMUM	: 0.000	0.000	0.000	0.00	0.00
ARITH. MEAN	: 0.784	0.630	2.549	430.32	259.58
ARITH. STD. DEV.	: 3.635	0.741	2.632	558.91	403.08
GEOM. MEAN	: 0.255	0.434	1.484	197.24	36.72
1ST QUARTILE	: 0.104	0.192	0.681	75.60	3.18
2ND QUARTILE	: 0.215	0.436	1.552	269.97	114.60
3RD QUARTILE	: 0.504	0.759	3.300	569.48	357.48
VOL. WGT. MEAN	: 0.784	0.649	2.604	408.19	263.14
MISSING VALUES	: 12	12	8	20	9

PART VII

SUMMARY STATISTICS OF AIR CONCENTRATION BY STATION



ONTARIO MINISTRY OF ENVIRONMENT & ENERGY  
 APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY  
 1991 SUMMARY STATISTICS OF CONCENTRATION

STATION: LONGWOODS SEQUENTIAL SITE NO.1

	SULFUR DIOXIDE UG/M3	SULFATE UG/M3	NITRIC UG/M3	NITRATE UG/M3	AMMONIUM UG/M3	TOTAL NITRATE UG/M3
# OF SAMPLES	352	352	352	352	352	352
MAXIMUM	43.33	31.36	2.76	3.11	7.27	3.22
MINIMUM	0.00	0.00	0.01	0.00	0.00	0.01
ARITH. MEAN	8.71	5.15	0.30	0.63	1.79	0.94
ARITH. STD. DEV.	8.10	5.40	0.32	0.60	1.58	0.70
GEOM. MEAN	5.47	3.46	0.18	0.44	1.15	0.67
1ST QUARTILE	2.69	1.95	0.09	0.19	0.58	0.40
2ND QUARTILE	6.57	3.44	0.19	0.42	1.28	0.76
3RD QUARTILE	12.38	5.76	0.40	0.89	2.67	1.27
MISSING VALUES	7	8	3	5	5	6



ONTARIO MINISTRY OF ENVIRONMENT & ENERGY  
 APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY  
 1991 SUMMARY STATISTICS OF CONCENTRATION

STATION: DORSET SEQUENTIAL SITE NO.1

# OF SAMPLES	SULFUR DIOXIDE UG/M3	SULFATE UG/M3	NITRIC UG/M3	NITRATE UG/M3	AMMONIUM UG/M3	TOTAL NITRATE UG/M3
:	365	365	365	365	365	365
MAXIMUM	29.90	35.97	1.39	2.16	5.53	3.01
MINIMUM	0.00	0.09	0.00	0.00	0.00	0.01
ARITH. MEAN	3.56	2.86	0.21	0.12	0.72	0.34
ARITH. STD. DEV.	4.83	4.06	0.23	0.27	0.96	0.41
GEOM. MEAN	1.99	1.71	0.11	0.06	0.36	0.18
1ST QUARTILE	0.34	0.96	0.05	0.01	0.16	0.07
2ND QUARTILE	1.73	1.76	0.12	0.03	0.34	0.17
3RD QUARTILE	4.58	3.22	0.31	0.09	0.86	0.43
MISSING VALUES	2	4	2	3	2	3

ONTARIO MINISTRY OF ENVIRONMENT & ENERGY  
 APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY  
 1991. SUMMARY STATISTICS OF CONCENTRATION

STATION: CHARLESTON LAKE SEQUENTIAL SITE NO.1

	SULFUR DIOXIDE UG/M3	SULFATE UG/M3	NITRIC UG/M3	NITRATE UG/M3	AMMONIUM UG/M3	TOTAL NITRATE UG/M3
# OF SAMPLES	335	335	335	335	335	335
MAXIMUM	21.99	23.40	1.08	2.01	7.60	2.26
MINIMUM	0.00	0.00	0.00	0.00	0.00	0.01
ARITH. MEAN	3.33	2.73	0.23	0.20	0.86	0.44
ARITH. STD. DEV.	3.92	3.42	0.20	0.26	0.99	0.37
GEOM. MEAN	2.09	1.63	0.16	0.12	0.49	0.31
1ST QUANTILE	0.54	0.79	0.09	0.05	0.23	0.16
2ND QUANTILE	1.79	1.77	0.16	0.12	0.55	0.33
3RD QUANTILE	4.90	3.16	0.30	0.24	1.01	0.62
MISSING VALUES	27	34	14	33	27	14

ONTARIO MINISTRY OF ENVIRONMENT & ENERGY  
 APTOS - ACIDIC PRECIPITATION IN ONTARIO STUDY  
 1991 SUMMARY STATISTICS OF CONCENTRATION

STATION: FERNBERG SEQUENTIAL SITE NO.1

	SULFUR DIOXIDE UG/M3	SULFATE UG/M3	NITRIC UG/M3	NITRATE UG/M3	AMMONIUM UG/M3	TOTAL NITRATE UG/M3
# OF SAMPLES	351	351	351	351	351	351
MAXIMUM	8.32	13.64	0.98	1.44	3.36	1.68
MINIMUM	0.00	0.00	0.00	0.00	0.00	0.00
ARITH. MEAN	0.97	1.53	0.10	0.07	0.43	0.17
ARITH. STD. DEV.	1.28	1.87	0.11	0.16	0.54	0.22
GEOM. MEAN	0.86	1.02	0.06	0.07	0.26	0.10
1ST QUARTILE	0.00	0.58	0.03	0.00	0.15	0.04
2ND QUARTILE	0.55	1.00	0.07	0.02	0.25	0.10
3RD QUARTILE	1.33	1.65	0.13	0.06	0.45	0.21
MISSING VALUES	4	5	3	4	4	3

PART VIII

SUMMARY STATISTICS OF AIR CONCENTRATION BY REGION



ONTARIO MINISTRY OF ENVIRONMENT & ENERGY  
 APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY  
 1991 SUMMARY STATISTICS OF CONCENTRATION

REGION: CE

	SULFUR DIOXIDE UG/M3	SULFATE UG/M3	NITRIC UG/M3	NITRATE UG/M3	AMMONIUM UG/M3	TOTAL NITRATE UG/M3
# OF SAMPLES	716	716	716	716	716	716
MAXIMUM	29.90	35.97	1.39	2.16	5.53	3.01
MINIMUM	0.00	0.00	0.00	0.00	0.00	0.00
ARITH. MEAN	2.30	2.21	0.16	0.10	0.58	0.26
ARITH. STD. DEV.	3.79	3.25	0.19	0.22	0.80	0.34
GEOM. MEAN	1.32	1.33	0.08	0.06	0.31	0.13
1ST QUARTILE	0.14	0.73	0.04	0.01	0.15	0.06
2ND QUARTILE	1.01	1.29	0.09	0.03	0.27	0.13
3RD QUARTILE	2.58	2.46	0.20	0.08	0.62	0.31
MISSING VALUES	6	9	5	7	6	6



ONTARIO MINISTRY OF ENVIRONMENT & ENERGY  
 APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY  
 1991 SUMMARY STATISTICS OF CONCENTRATION

REGION: NW

	SULFUR DIOXIDE UG/M3	SULFATE UG/M3	NITRIC UG/M3	NITRATE UG/M3	AMMONIUM UG/M3	TOTAL NITRATE UG/M3
# OF SAMPLES	351	351	351	351	351	351
MAXIMUM	8.32	13.64	0.98	1.44	3.36	1.68
MINIMUM	0.00	0.00	0.00	0.00	0.00	0.00
ARITH. MEAN	0.97	1.53	0.10	0.07	0.43	0.17
ARITH. STD. DEV.	1.28	1.87	0.11	0.16	0.54	0.22
GEOM. MEAN	0.86	1.02	0.06	0.07	0.26	0.10
1ST QUARTILE	0.00	0.58	0.03	0.00	0.15	0.04
2ND QUARTILE	0.55	1.00	0.07	0.02	0.25	0.10
3RD QUARTILE	1.33	1.65	0.13	0.06	0.45	0.21
MISSING VALUES	4	5	3	4	4	3

ONTARIO MINISTRY OF ENVIRONMENT & ENERGY  
 APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY  
 1991 SUMMARY STATISTICS OF CONCENTRATION

REGION: SE

	SULFUR DIOXIDE UG/M3	SULFATE UG/M3	NITRIC UG/M3	NITRATE UG/M3	AMMONIUM UG/M3	TOTAL NITRATE UG/M3
# OF SAMPLES	335	335	335	335	335	335
MAXIMUM	21.99	23.40	1.08	2.01	7.60	2.26
MINIMUM	0.00	0.00	0.00	0.00	0.00	0.01
ARITH. MEAN	3.33	2.73	0.23	0.20	0.86	0.44
ARITH. STD. DEV.	3.92	3.42	0.20	0.26	0.99	0.37
GEOM. MEAN	2.09	1.63	0.16	0.12	0.49	0.31
1ST QUARTILE	0.54	0.79	0.09	0.05	0.23	0.16
2ND QUARTILE	1.79	1.77	0.16	0.12	0.55	0.33
3RD QUARTILE	4.90	3.16	0.30	0.24	1.01	0.62
MISSING VALUES	27	34	14	33	27	14

ONTARIO MINISTRY OF ENVIRONMENT & ENERGY  
 APIOS - ACIDIC PRECIPITATION IN ONTARIO STUDY  
 1991 SUMMARY STATISTICS OF CONCENTRATION

REGION: SW

	SULFUR DIOXIDE UG/M3	SULFATE UG/M3	NITRIC UG/M3	NITRATE UG/M3	AMMONIUM UG/M3	TOTAL NITRATE UG/M3
# OF SAMPLES :	352	352	352	352	352	352
MAXIMUM :	43.33	31.36	2.76	3.11	7.27	3.22
MINIMUM :	0.00	0.00	0.01	0.00	0.00	0.01
ARITH. MEAN :	8.71	5.15	0.30	0.63	1.79	0.94
ARITH. STD. DEV. :	8.10	5.40	0.32	0.60	1.58	0.70
GEOM. MEAN :	5.47	3.46	0.18	0.44	1.15	0.67
1ST QUARTILE :	2.69	1.95	0.09	0.19	0.58	0.40
2ND QUARTILE :	6.57	3.44	0.19	0.42	1.28	0.76
3RD QUARTILE :	12.38	5.76	0.40	0.89	2.67	1.27
MISSING VALUES :	7	8	3	5	5	6





